CLAIMS

1. A Stirling engine assembly comprising a Stirling engine having a generally cylindrical head, an annular burner surrounding the head and defining a combustion chamber between the burner and head, an annular seal between the burner and head to provide a seal for combustion gases, a thermocouple housing in thermal contact with the head and sealed from the combustion chamber, the thermocouple housing extending out of the combustion chamber, with the interface between the thermocouple housing and combustion chamber being sealed, the thermocouple housing having an opening outside the combustion chamber, and a thermocouple in the thermocouple housing extending from a location adjacent to the head out of the opening in the thermocouple housing.

2. A Stirling engine assembly according to claim 1, wherein the Stirling engine has a plurality of rows of fins surrounding the head.

3. A Stirling engine assembly according to claim 2, wherein at least one row is provided with an orifice to allow the thermocouple housing to pass therethrough.

4. A Stirling engine assembly according to claim 3, wherein the orifice is located adjacent to the engine head, such that the housing passes through the at least one fin adjacent to the head.

5. A Stirling engine assembly according to any one of the preceding claims, wherein annular plate surrounds and is sealed to the head beneath the burner, and wherein the

thermocouple housing extends through and is brazed to the plate to provide the seal for combustion gases.

6. A Stirling engine assembly according to claim 5, wherein insulation is provided between the burner and the plate, with the thermocouple housing extending through the insulation.

7. A Stirling engine according to any one of the preceding claims, wherein the thermocouple is retained in the thermocouple housing by a spring clip.

8. A Sterling engine according to any preceding claims further comprising a second thermocouple housing in thermal contact with the head and sealed from the combustion chamber, the second thermocouple housing extending out of the second combustion chamber, with the interface between the second thermocouple housing and combustion chamber being sealed, the second thermocouple housing having an opening outside the combustion chamber, and a second thermocouple in the second thermocouple housing extending from a location adjacent to the head out of the opening in the second thermocouple housing.